

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

## IMAGES ARE BEST AVAILABLE COPY.

As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.



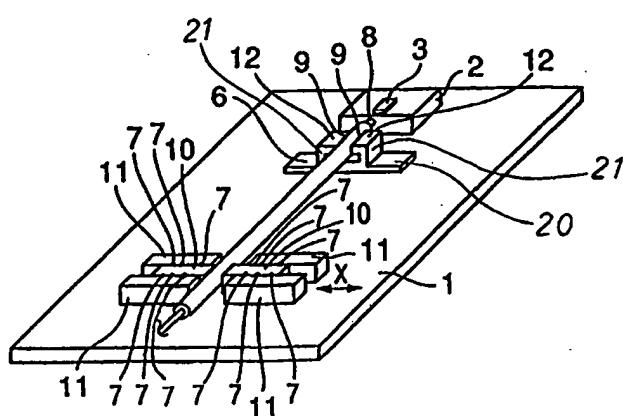
PCT

特許協力条約に基づいて公開された国際出願

(51) 国際特許分類7 G02B 6/42, H01S 5/022	A1	(11) 国際公開番号 WO00/29890 (43) 国際公開日 2000年5月25日(25.05.00)
(21) 国際出願番号 PCT/JP99/06288		(81) 指定国 CA, US, 歐州特許(AT, BB, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE)
(22) 国際出願日 1999年11月11日(11.11.99)		添付公開書類 国際調査報告書
(30) 優先権データ 特願平10/341145 1998年11月13日(13.11.98) JP		
(71) 出願人 (米国を除くすべての指定国について) 古河電気工業株式会社 (THE FURUKAWA ELECTRIC CO., LTD.)[JP/JP] 〒100-8322 東京都千代田区丸の内2丁目6番1号 Tokyo, (JP)		
(72) 発明者 ; および (75) 発明者／出願人 (米国についてのみ) 入江雄一郎(IRIE, Yuichiro)[JP/JP] 三代川純(MIYOKAWA, Jun)[JP/JP] 清水健男(SHIMIZU, Takeo)[JP/JP] 〒100-8322 東京都千代田区丸の内2丁目6番1号 古河電気工業株式会社内 Tokyo, (JP)		
(74) 代理人 五十嵐清(IGARASHI, Kiyoshi) 〒220-0011 神奈川県横浜市西区高島2丁目10番13号 横浜東口ビル908号室 Kanagawa, (JP)		

(54) Title: LASER DIODE MODULE AND ITS MANUFACTURE METHOD

(54) 発明の名称 レーザダイオードモジュールおよびその作製方法

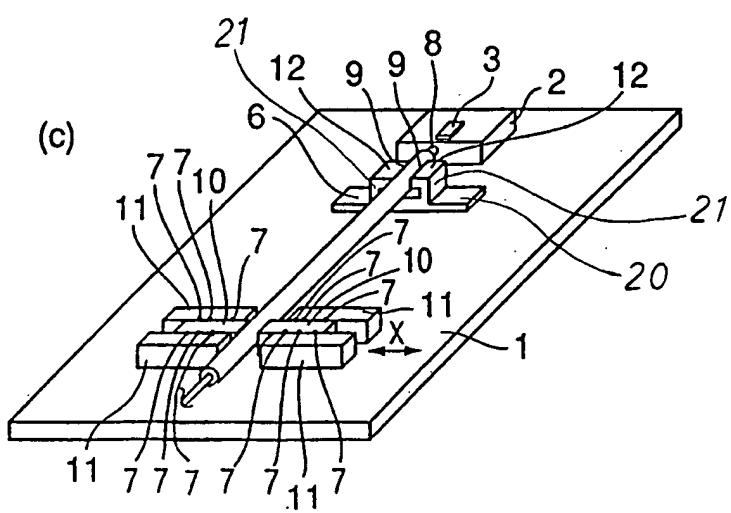
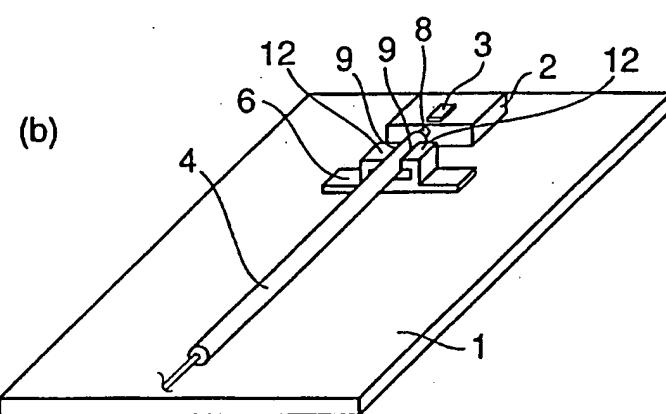
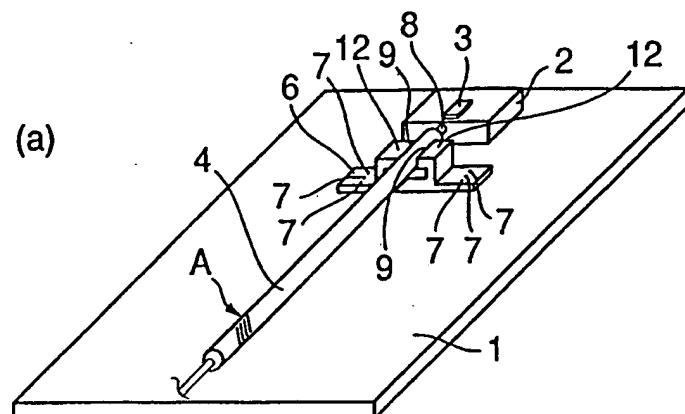


(57) Abstract

A laser diode module which can be manufactured easily in a short time at low cost and has a high long-term reliability and its manufacturing method are disclosed. A lensed fiber (8) is aligned with a laser diode device (LD device) (3). The front sides of a ferrule (4) near the LD device (3) are made held portions (9) and sandwiched by a ferrule support component (6). The rear sides of the ferrule (4) are moved around the held portions (9) and thereby the lensed fiber (8) is re-aligned with the LD device (3). On both sides of the rear of the ferrule (4), ferrule fixing components (10) guided by guide sections (11) are provided at intervals of about 0 to 5 μm between the ferrule (4) and the ferrule fixing components (10). After the ferrule fixing components (10) are fixed to the guide sections (11), the ferrule (4) is welded to the ferrule fixing components (10) by a YAG laser beam.

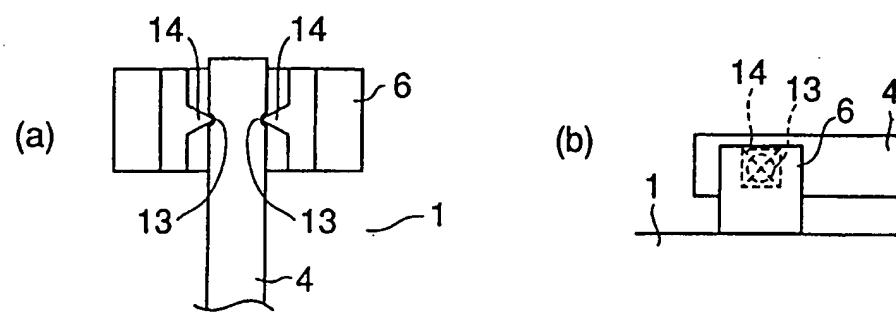
1 / 3

第1図

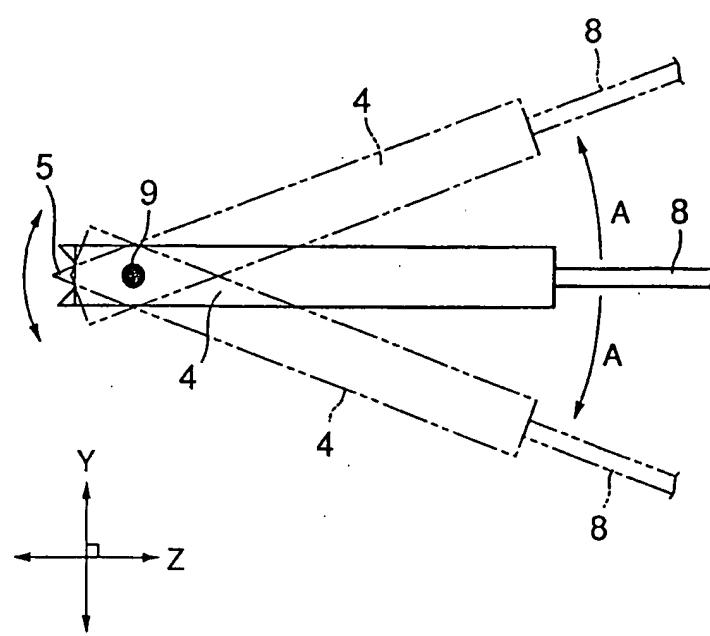


2 / 3

第2図

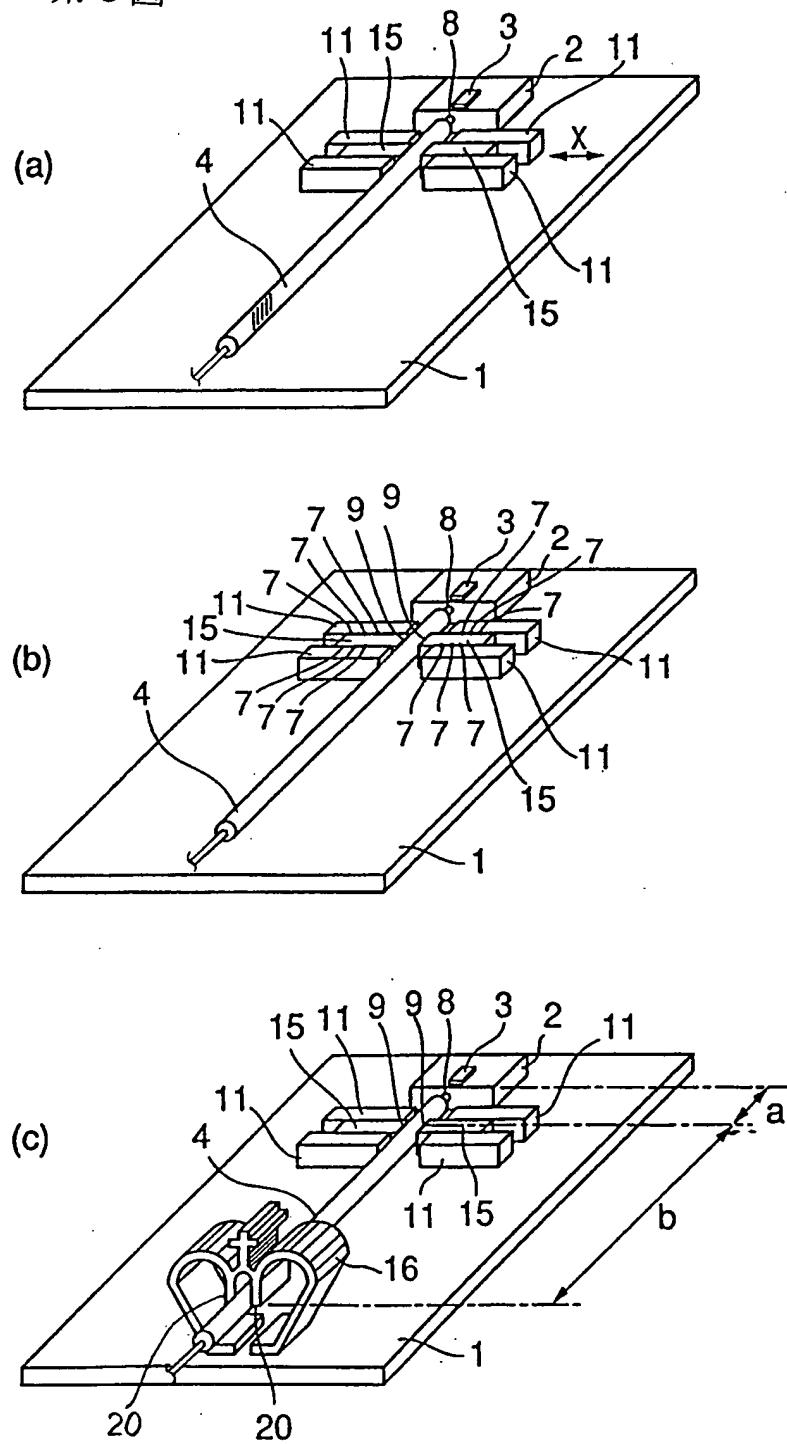


第4図



3 / 3

第3図



**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/JP99/06288

**A. CLASSIFICATION OF SUBJECT MATTER**  
Int.Cl<sup>7</sup> G02B6/42 , H01S5/022

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
Int.Cl<sup>7</sup> G02B6/42-6/43 , H01S5/022

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
Jitsuyo Shinan Koho 1922-1996 Toroku Jitsuyo Shinan Koho 1994-2000  
Kokai Jitsuyo Shinan Koho 1971-2000 Jitsuyo Shinan Toroku Koho 1996-2000

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
JICST (JOIS)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP, 2-284106, A (Japan Aviation Electron Ind. Ltd.), 21 November, 1990 (21.11.90) (Family: none)	1-5
P,A	JP, 11-160581, A (The Furukawa Electric Co., Ltd.), 18 June, 1999 (18.06.99) (Family: none)	1-5

Further documents are listed in the continuation of Box C.

See patent family annex.

- \* Special categories of cited documents:
- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search  
03 February, 2000 (03.02.00)

Date of mailing of the international search report  
15 February, 2000 (15.02.00)

Name and mailing address of the ISA/  
Japanese Patent Office

Authorized officer

Faxsimile No.

Telephone No.